



Boosting Field Intelligence Collection

with the

FrogEye™

Amphibious Digital Camera

What is FrogEye™?

- ✓**A Digital Camera Specifically Designed & Optimized for Field Operations**
- ✓**A Multi-Purpose Tool For Field Intelligence Collection**
- ✓**An affordable and rugged ‘every day / every soldier’ instrument that can be widely distributed.**

History & Availability

- ✓**Originally Model FC-1 Camera Developed for U.S. SOCOM SOTVS Program**
- ✓**Conversion to COTS Status with Second Generation Model FC-2. Shipping Imminent.**
- ✓**Priced Similar to Rugged Notebooks: $5K-$10K**
- ✓**‘Cut & Paste Engineering’ Supports Affordable Custom Versions & Quick Turn-Around**

Desert Star Systems

FrogEye

The Digital Camera for Special Forces

Survivable



Dust, Shock & Waterproof
















Desert Star Systems
FrogEye
The Digital Camera for Special Forces
Seaborne &
Extreme Reconnaisance
Free-flooded collapsible lens

Camp Site 6.85km Distant



Building at 1.1km Distance





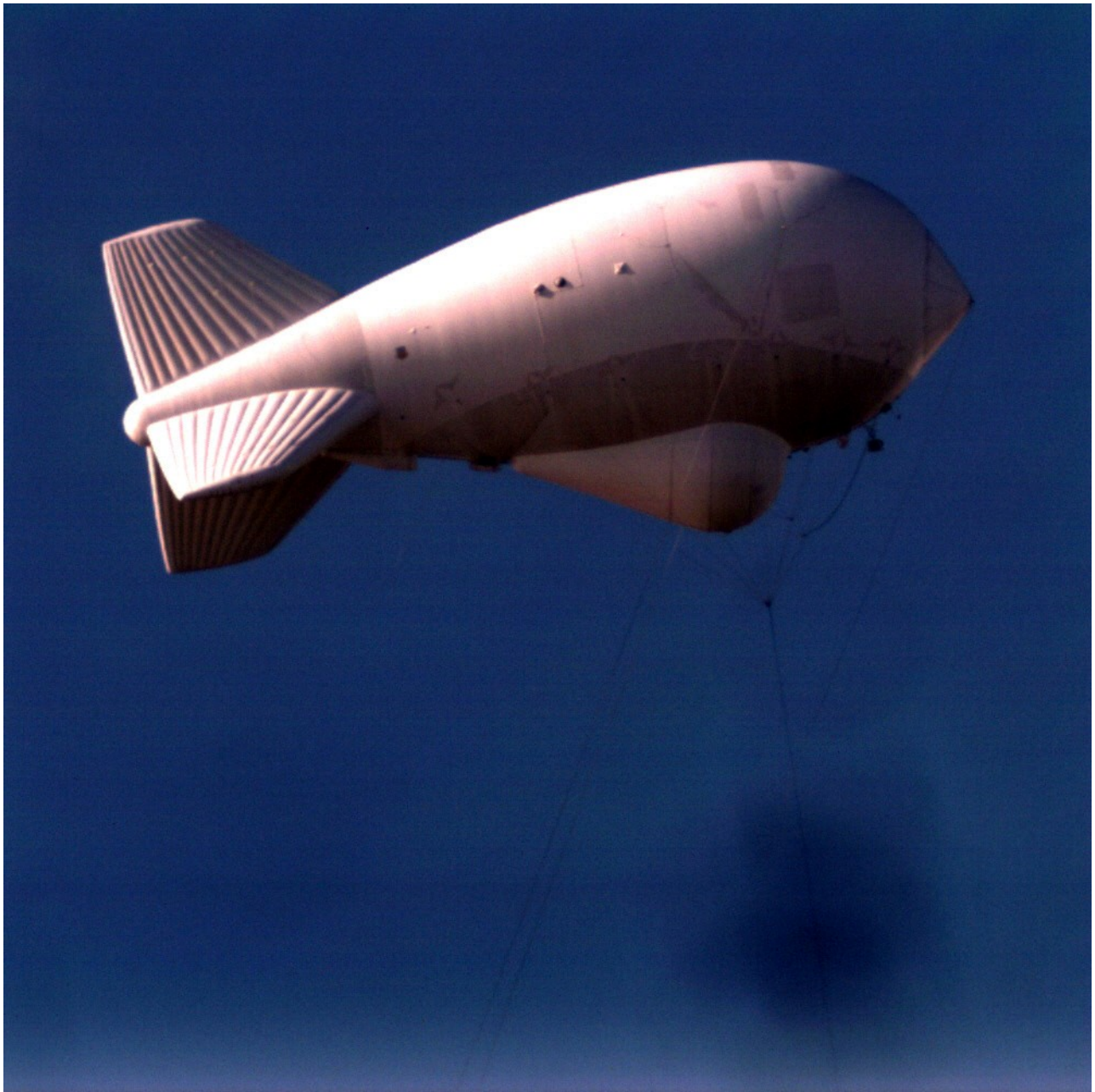
Lens Selection: Canon 28mm

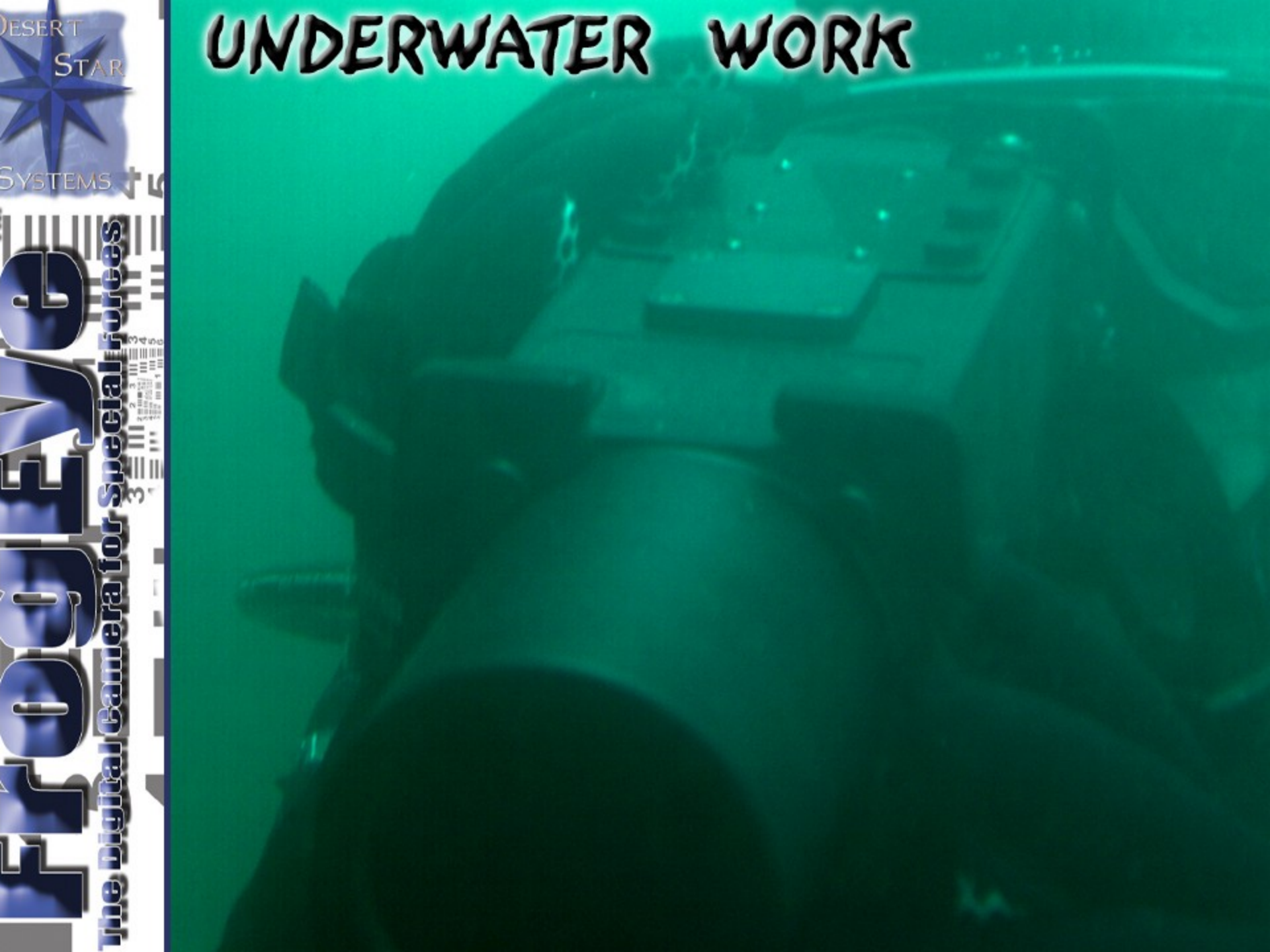


Lens Selection: Canon 105 mm



Lens Selection: FrogEye FL-400




DESERT STAR SYSTEMS
FROGEYE
The Digital Camera for Special Forces
UNDERWATER WORK


Monterey,
California


Florida Keys

DESERT STAR SYSTEMS

FROGEYE

The Digital Camera for Special Forces

Night Vision on Demand





Press here for night visio

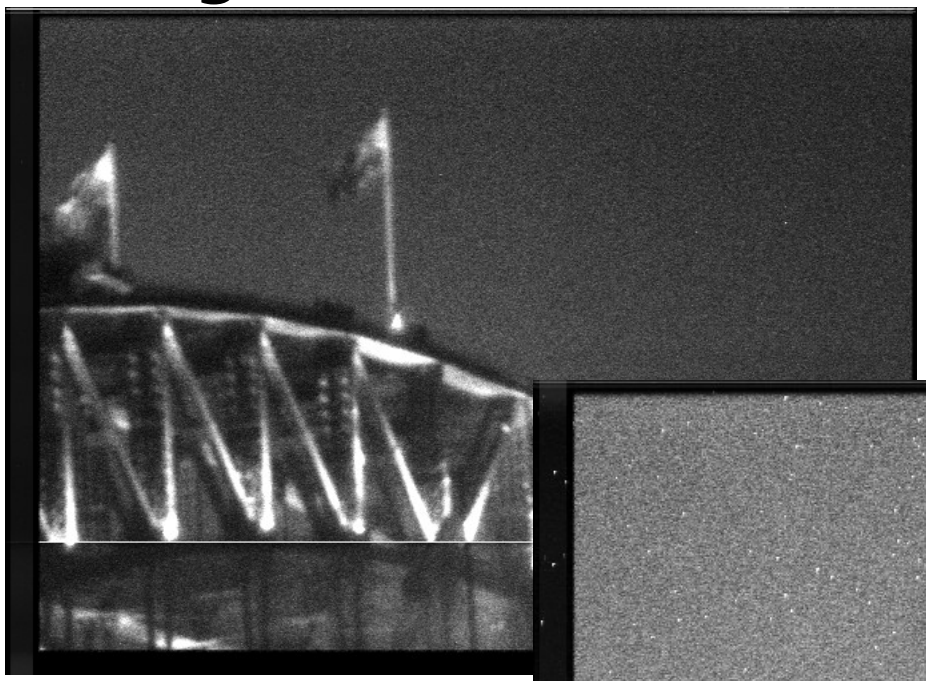
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Single Photon Detector (SPD):

Night Vision on Demand @ 10^{-2} Lux





DESERT STAR SYSTEMS

FrogEye™

The Digital Camera for Special Forces

Single Photon Detector (SPD):

Night Vision on Demand @ 10^{-2} Lux

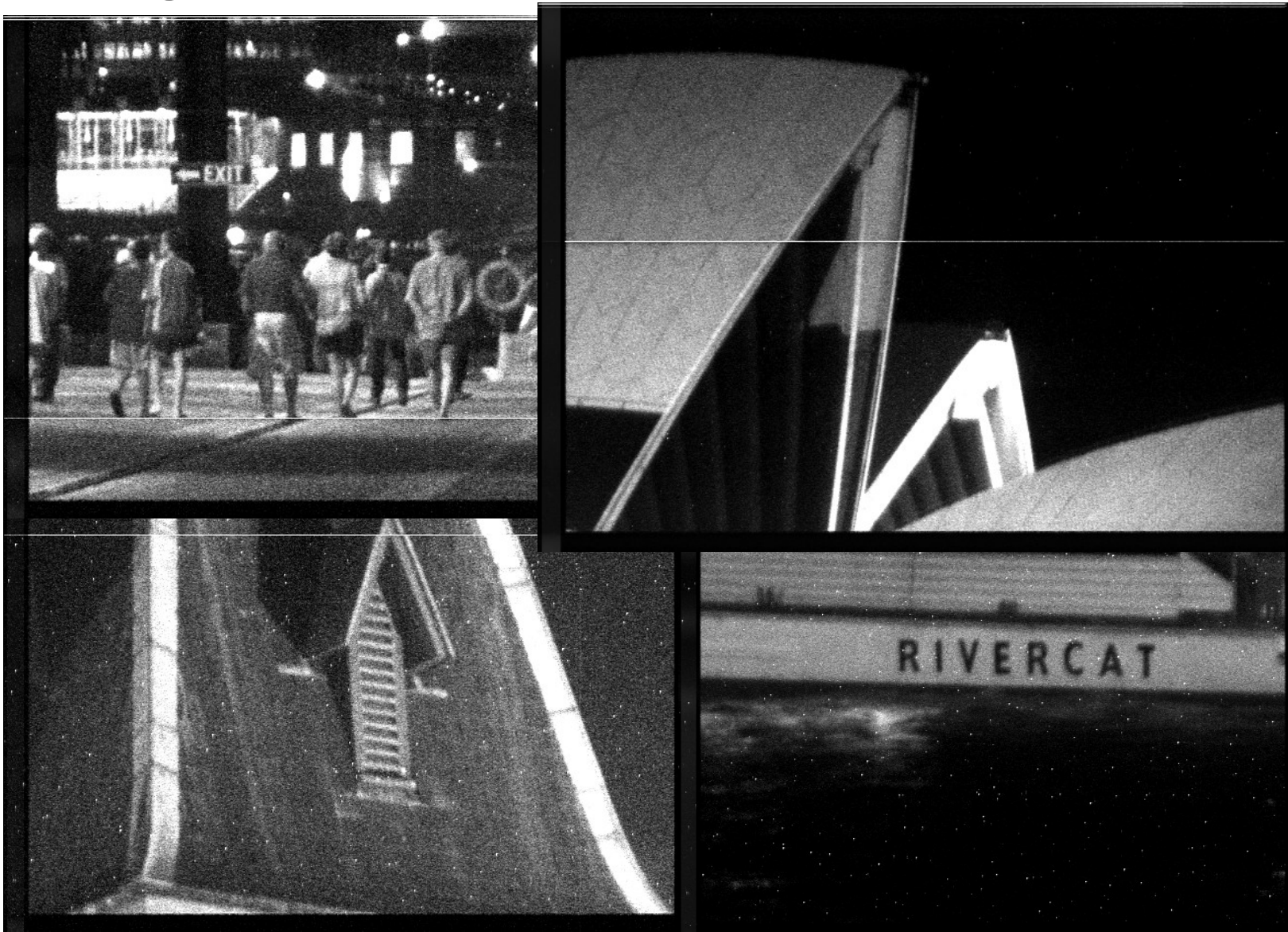


Image Intensifier NV @10^{-3} Lux

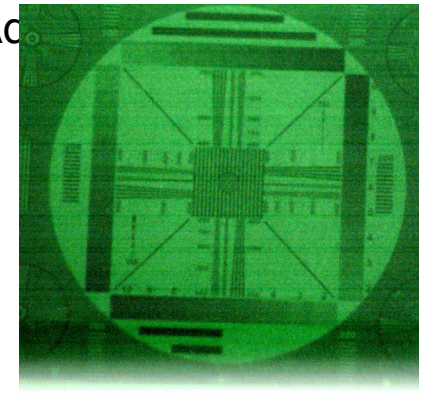
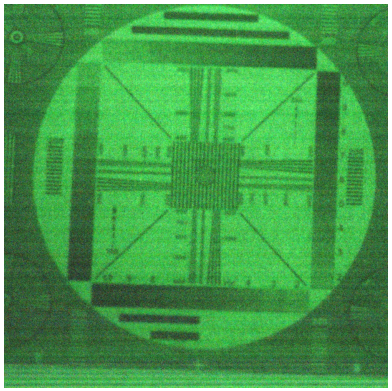
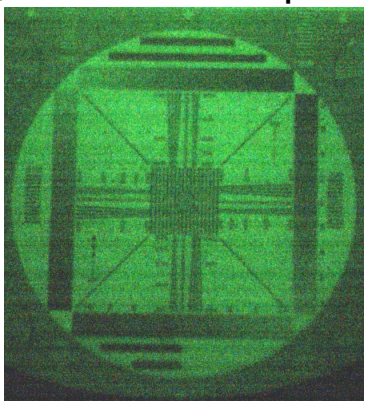
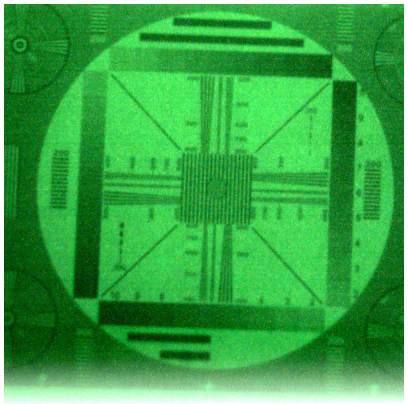
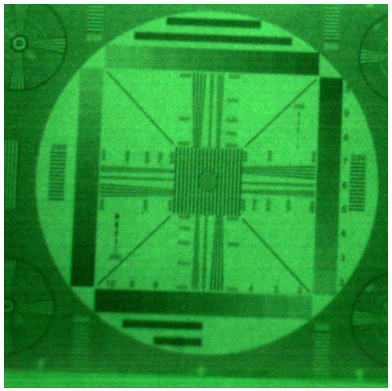
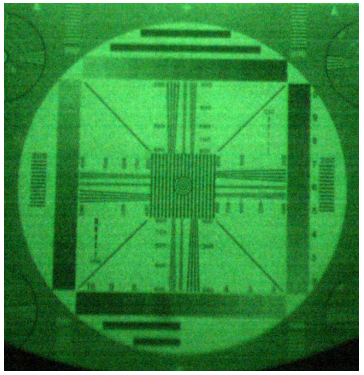
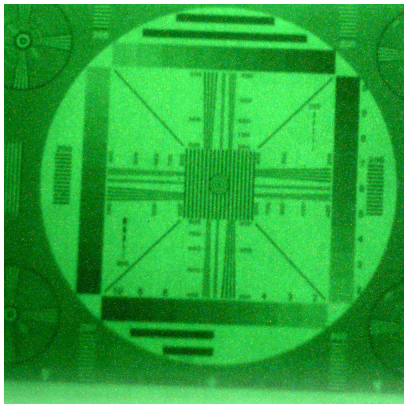
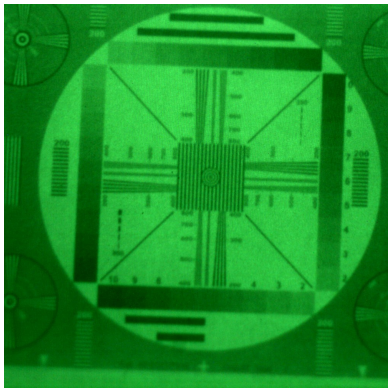
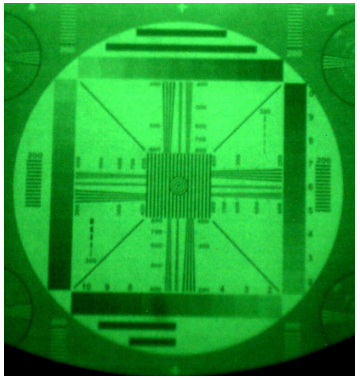
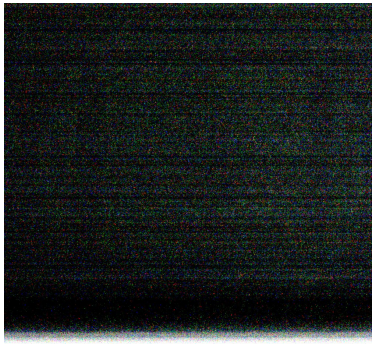
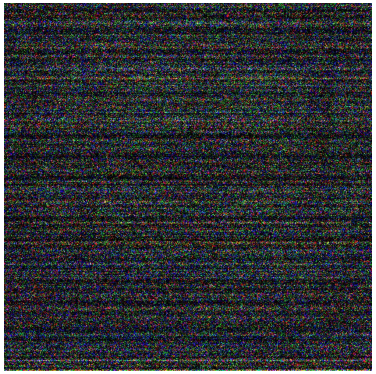
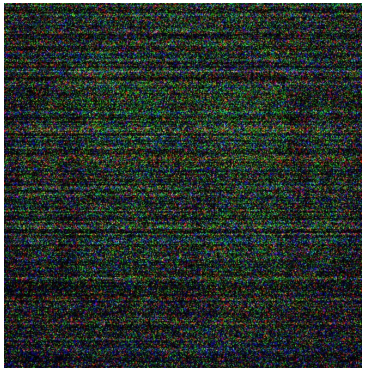
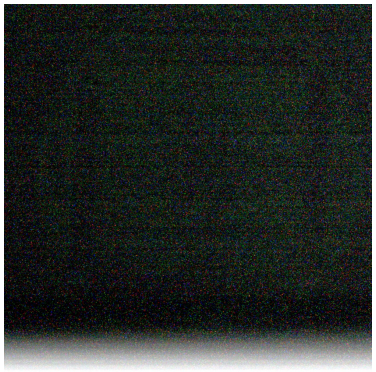
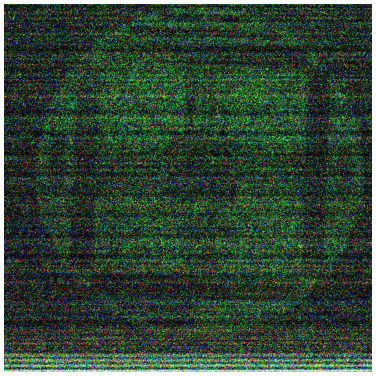
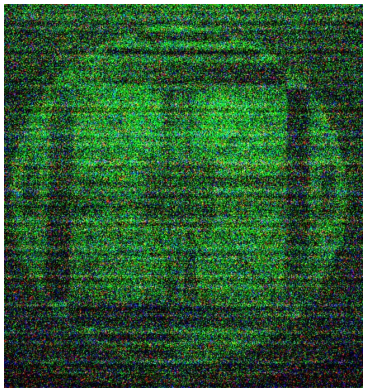
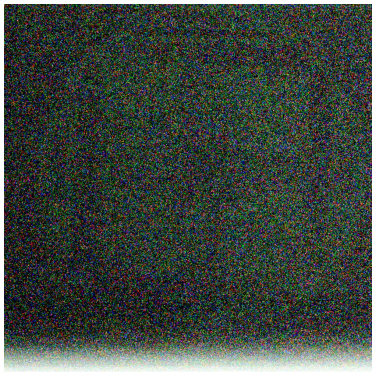
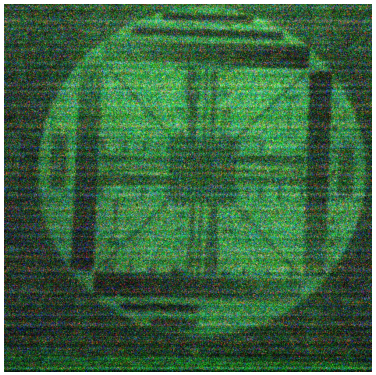
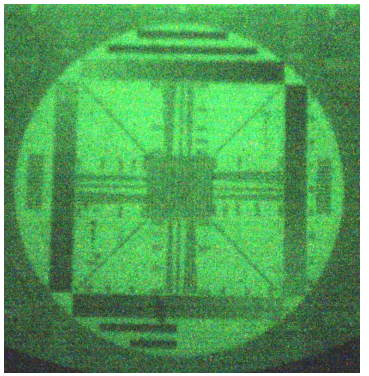
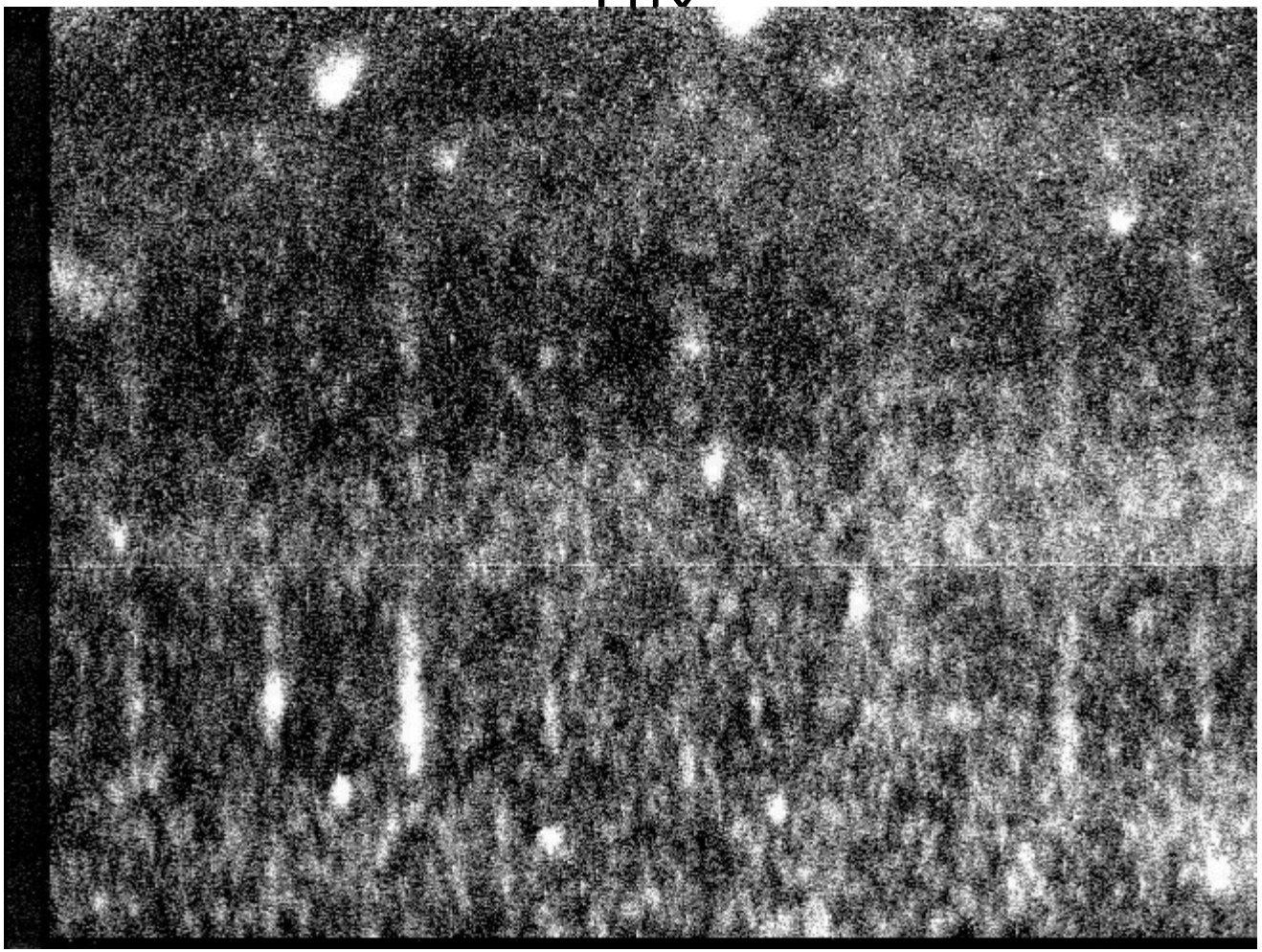
Ac	RAW	Dark Frame Subtract (DFS)	DFS & Optics
1/12 Sec			
¼ Sec			
1 Sec			

Image Intensifier Night Vision @10^{-4} Lux

Adjust	RAW	Dark Frame Subtract (DFS)	DFS & I2 Optics
1/12 Sec			
¼ Sec			
1 Sec			

Dual-Stage Night Vision with Frame Stacking @ 10^{-5} Lux



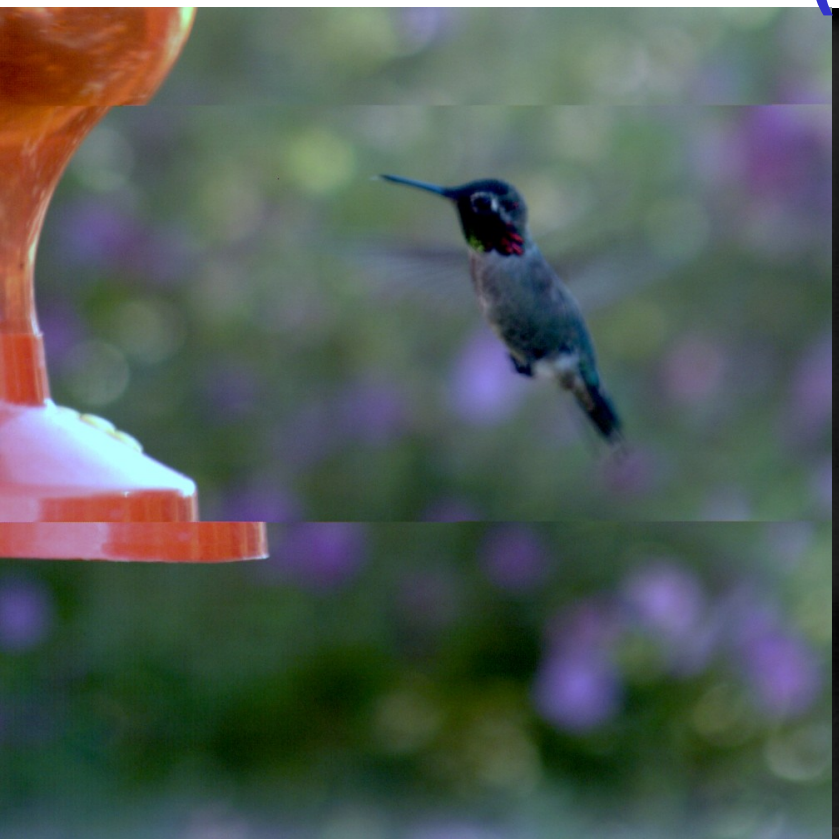
Using SPD ‘Night Vision’ During The Day

Minimize Exposure Time To:

- ‘Freeze’ Fast Action
- Eliminate Motion Blur & Vibration
- Rapid ‘Free Hand’ Imaging with Long Lens (FL-400)

KAI-1020 Color Sensor

SPD Sensor



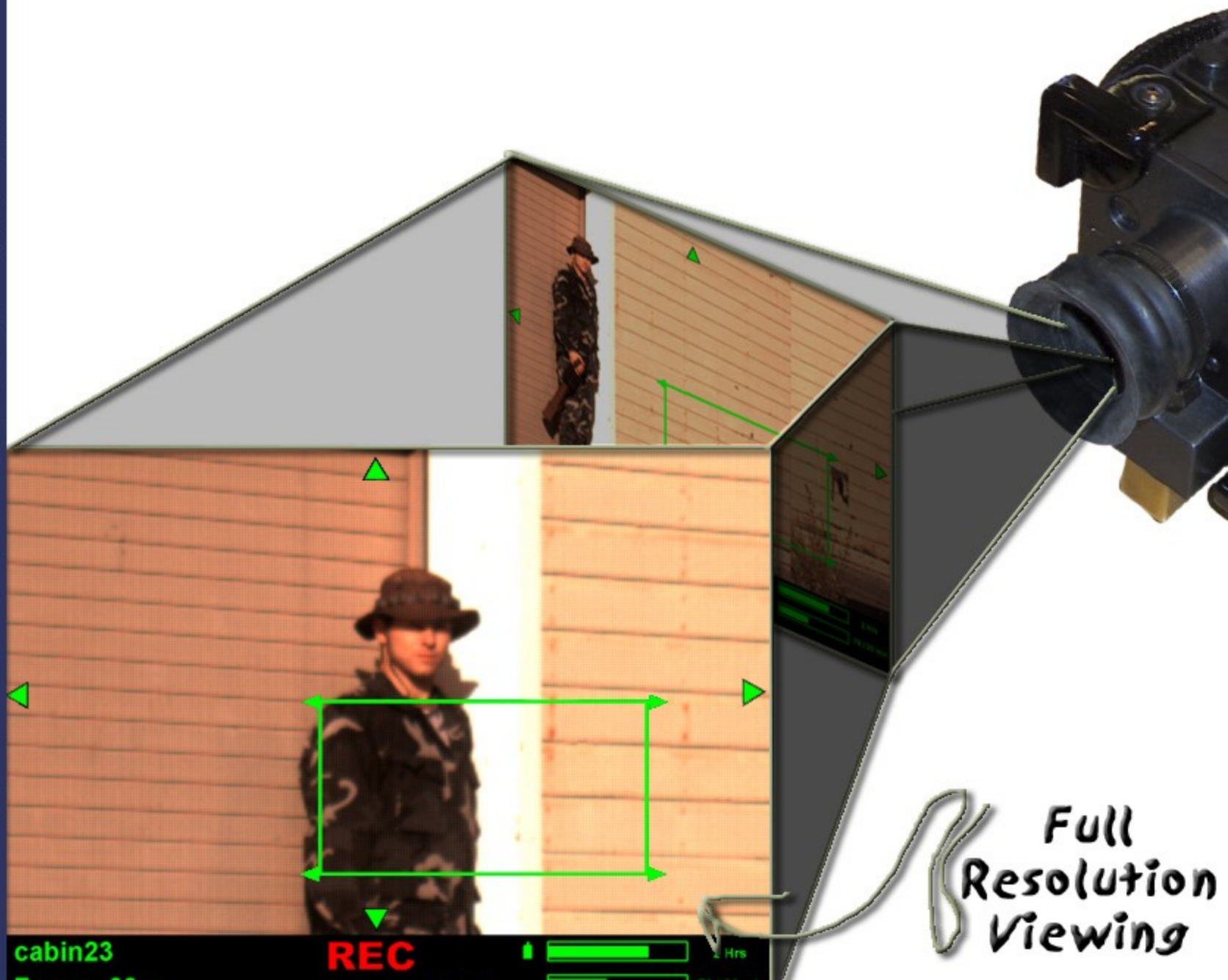


Instant Image Quality Control

Desert Star Systems

FrogEye

The Digital Camera for Special Forces



Wide Exposure Range: ‘Never Dark’



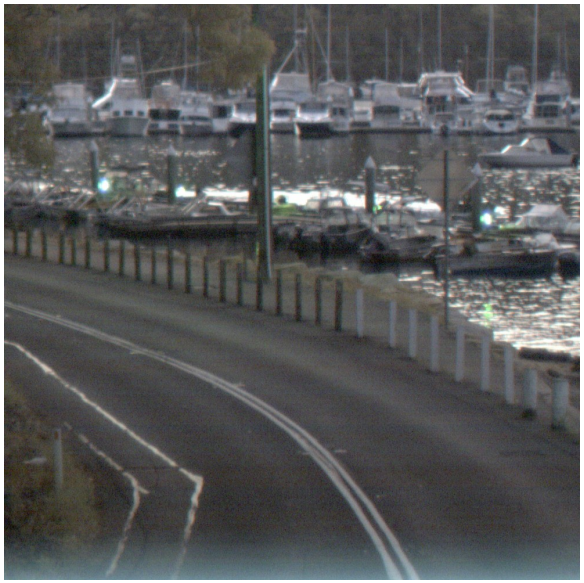
½ sec



1/8 sec



1/24 sec



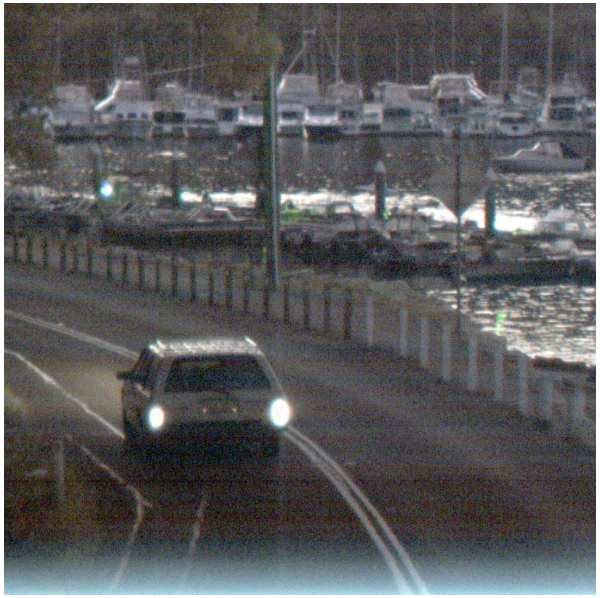
1/75 sec

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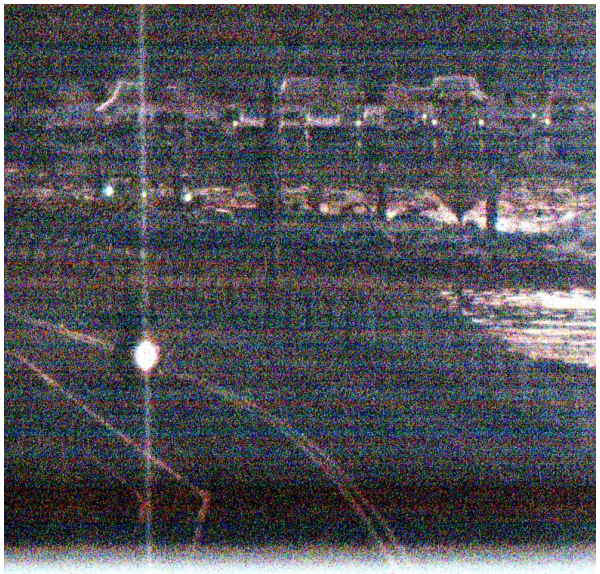
Wide Exposure Range: ‘Never Dark’



1/250 sec



1/750 sec



1/1500 sec



F3.6 @ 1/30 sec SPD (at night)

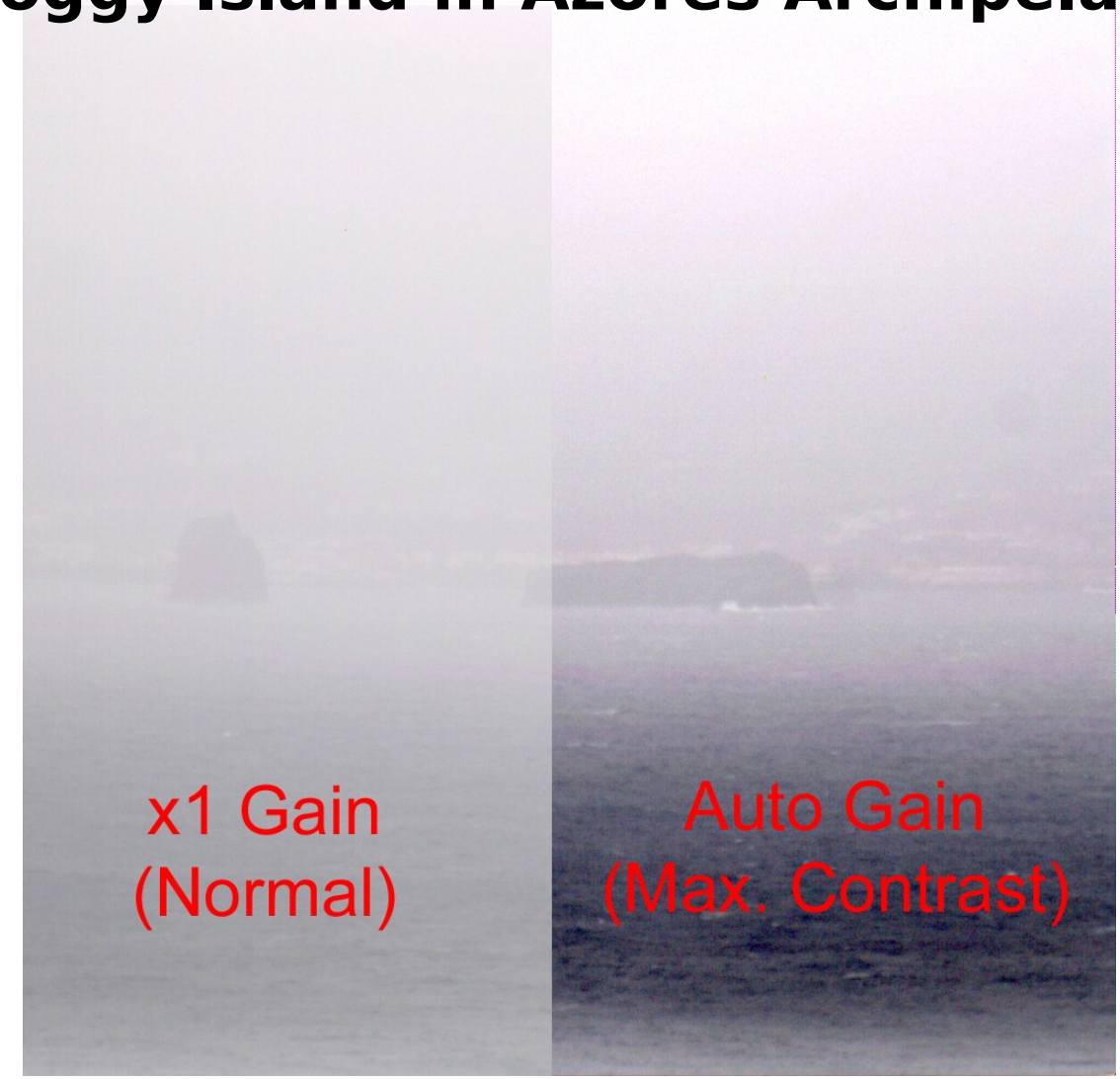
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Contrast Maximization for Improved Target Recognition

(Foggy Island in Azores Archipelago)



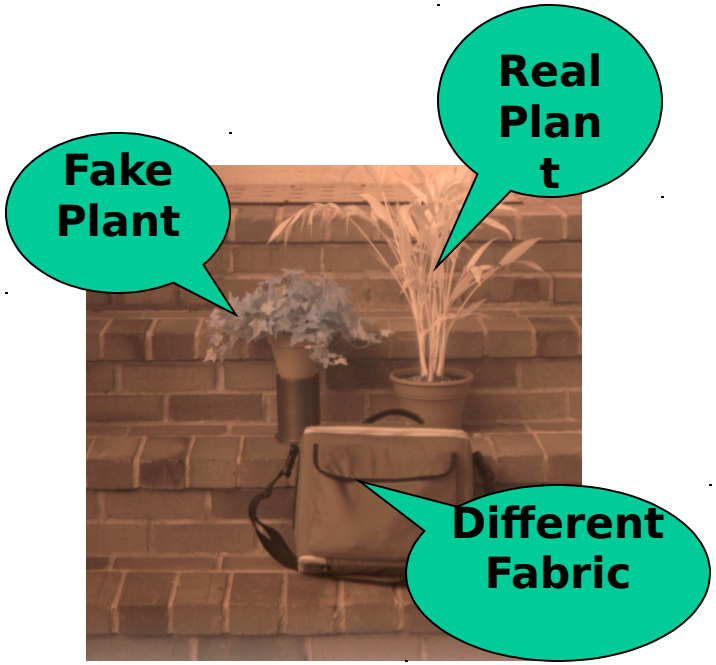
Desert Camp at 6.85 km Distance

Normal View **Max. Contrast**



Multi-Spectral Imaging

Contrast in Near IR or UV Images Defeats Camouflage…



Near IR Image



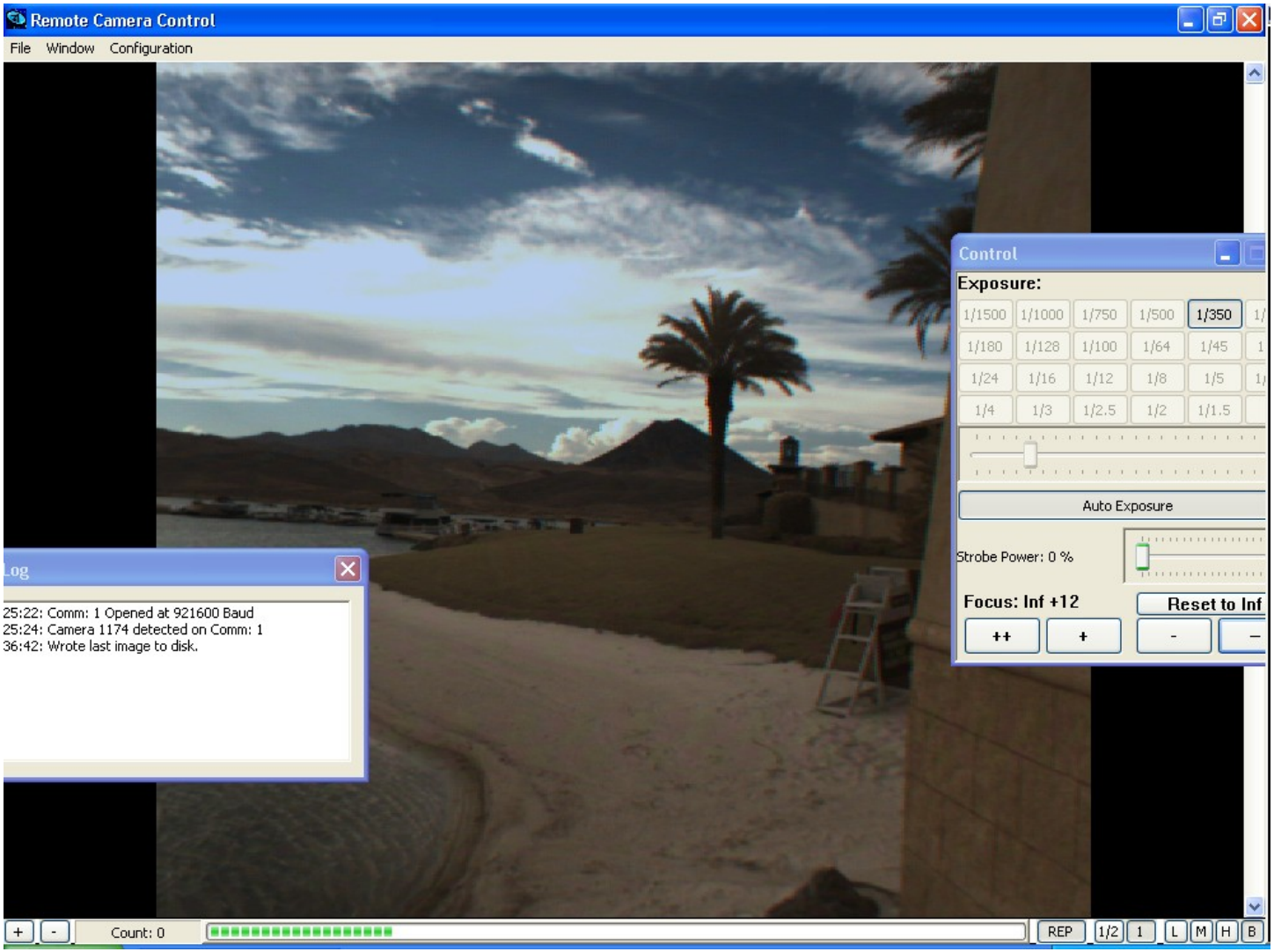
Visible Light Image

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FrogEye™ The Digital Camera for Special Forces


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REMOTE OPERATION

Remote Operation


Remote Camera Control
File Window Configuration
Control
Exposure:
1/1500 1/1000 1/750 1/500 1/350
1/180 1/128 1/100 1/64 1/45
1/24 1/16 1/12 1/8 1/5
1/4 1/3 1/2.5 1/2 1/1.5
Auto Exposure
Strobe Power: 0 %
Focus: Inf +12
Reset to Inf
++ + - –
Log
25:22: Comm: 1 Opened at 921600 Baud
25:24: Camera 1174 detected on Comm: 1
36:42: Wrote last image to disk.
+ - Count: 0
REP 1/2 1 L M H B

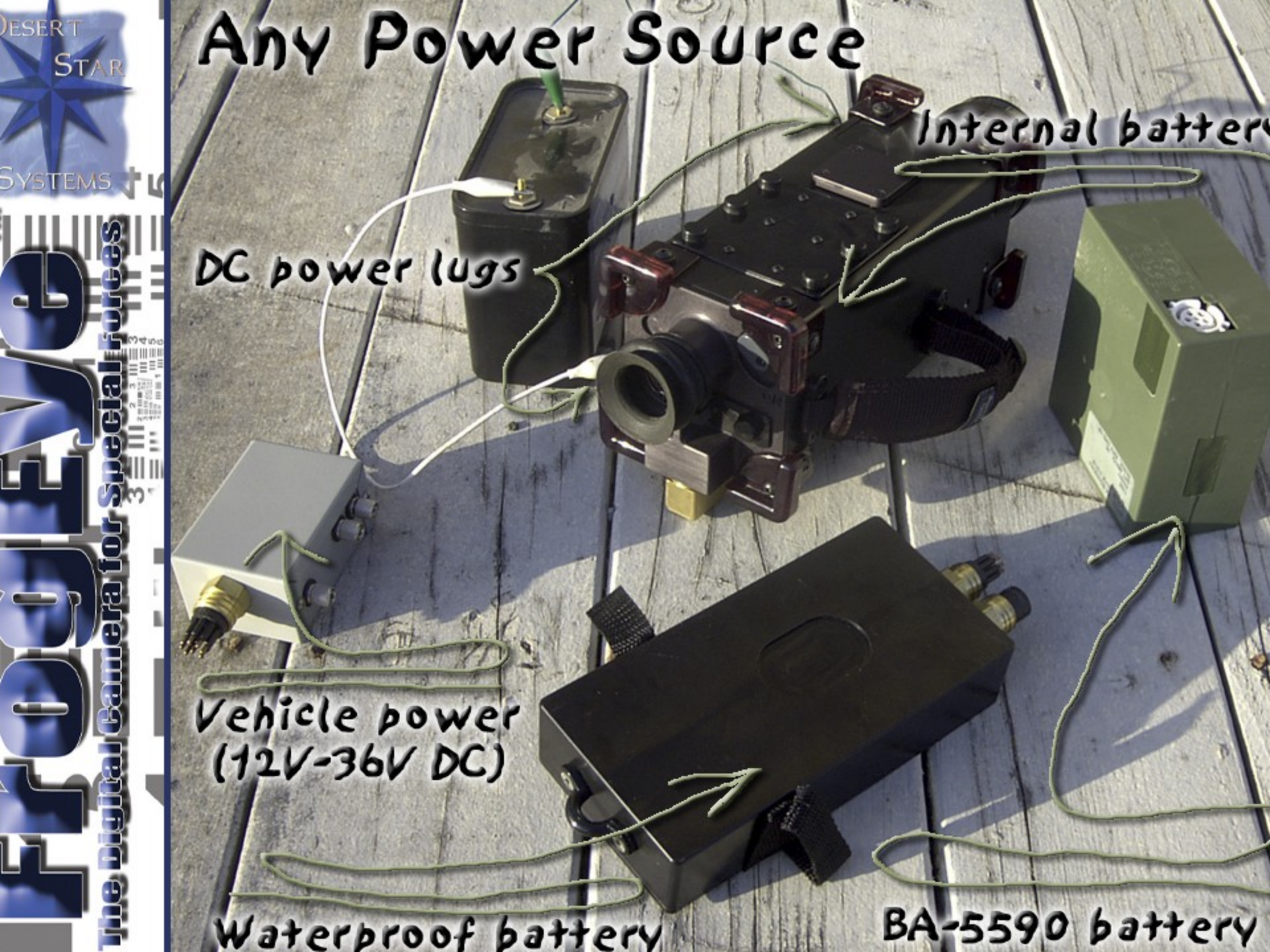
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Remote Operation & Motion Imagery



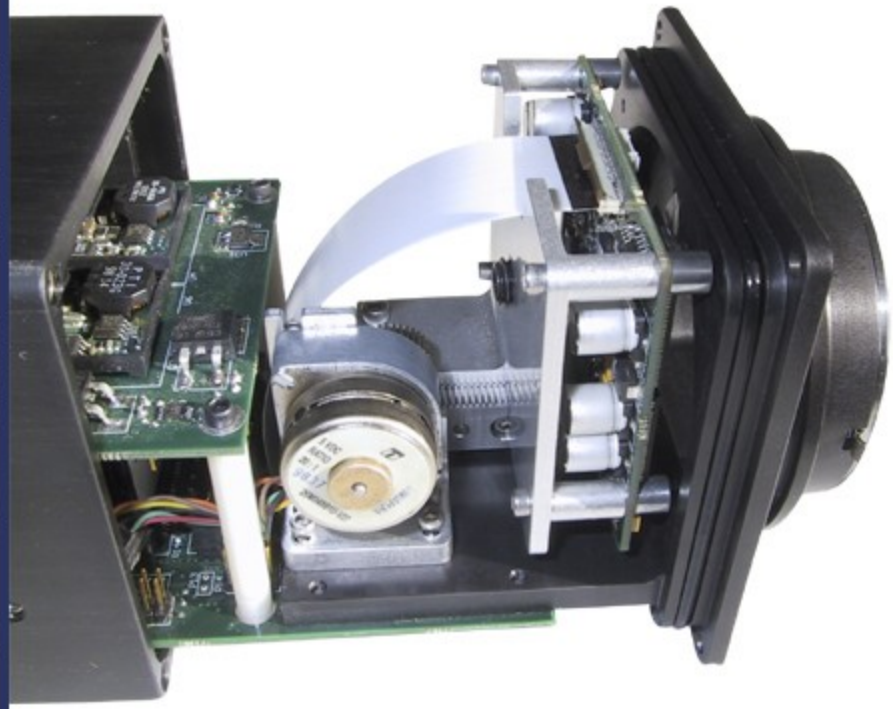

Any Power Source
Internal battery
DC power lugs
Vehicle power
(12V-36V DC)
Waterproof battery
BA-5590 battery
Desert Star
Systems
FrogEye
The Digital Camera for Special Forces

DESERT STAR SYSTEMS

FROGEYE

The Digital Camera for Special Forces

Never obsolete





UPGRADE . . .

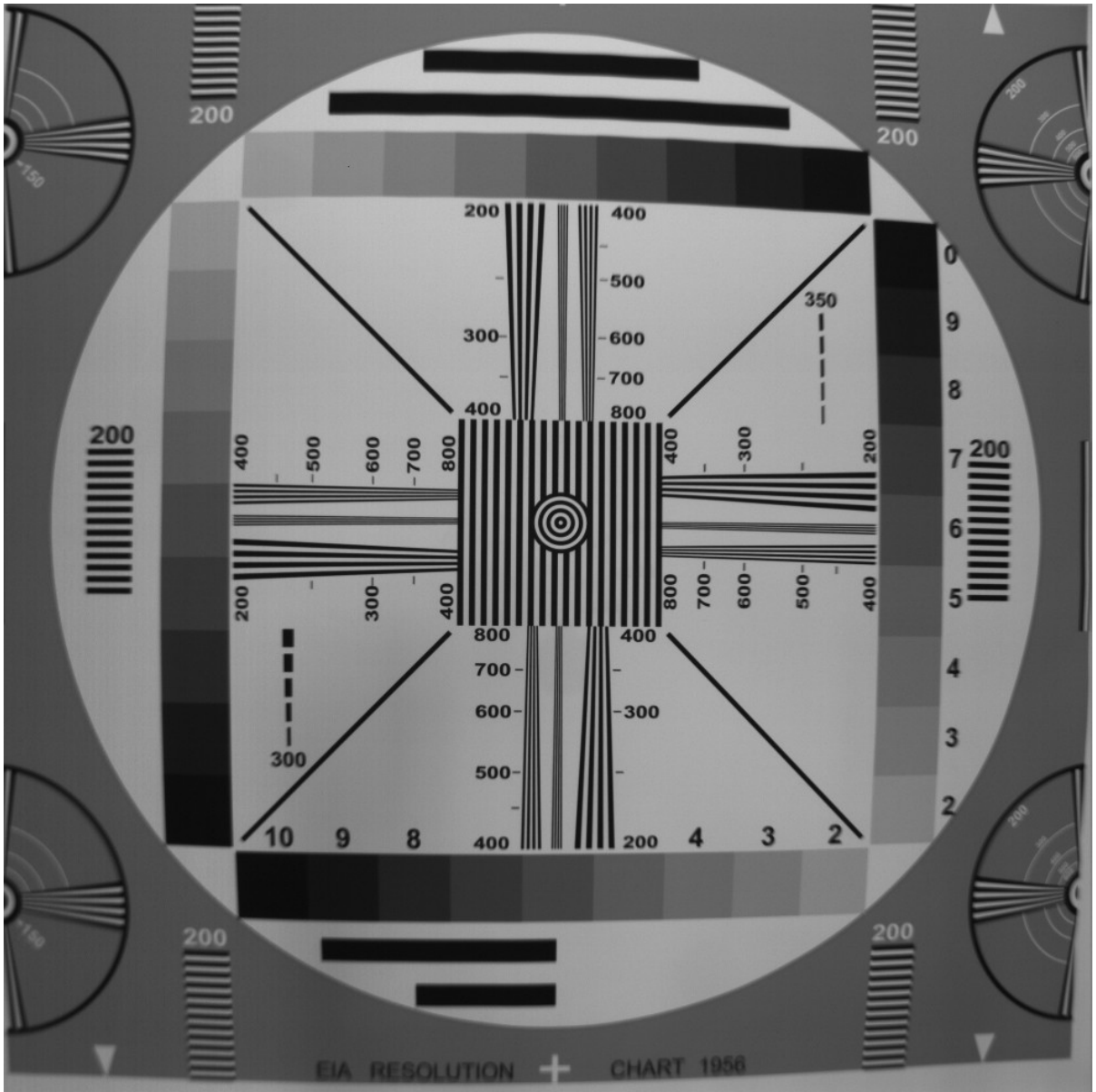
. . . Processor module, storage, image sensor module, power supply module, viewfinder

DESERT STAR SYSTEMS

FrogEye™ The Digital Camera for Special Forces

Exchangeable Image Sensor

Example: KODAK B/W for high definition and 5x sensitivity




DESERT STAR SYSTEMS
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FUTURE CAPABILITIES:
Painting Mode
CITY OF MARINA
DEPT. OF PUBLIC SAFETY
Volunteer Fire Station #2
30 Megapixel